

III. REMARKS

Generic claim 1 is corrected and amended in order to more clearly define the present invention and distinguish over the prior art.

Reconsideration of the rejection of the claims as being anticipated by the Crowley et al Patent 5,262,098 is respectfully requested in view of the amendment to generic claim 1 and for the following reasons.

This reference, discussed and incorporated at page 5, lines 20-23 of the specification for its disclosure of bichromal ball system fabrication, relates to conventional rotational ball systems which rely solely upon the principle of zeta potential differences produced by the different material properties at the opposing hemispheres of the balls - see Crowley et al at col. 1, lines 57 to col. 2, line 13. It is the difference in zeta potential between the hemispheres which causes the ball to act like a bipole and rotate in the presence of an electrical field.

The present hemispherical balls are induced to rotate by the creation and movement of clusters of mobile ions within the outer dielectric liquid at different speeds. The ions are formed from a low concentration of an ionizable charge director material dissolved in the dielectric liquid, during the application of a modest electric field. The clusters move at different speeds towards, the electrodes of opposite polarity, which movement induces a dipole movement and causes the ball to rotate into alignment with the electrical field.

This method for inducing rotational movement is substantially different from the system of Crowley et al which depends on the differences in zeta potential of the materials at the different hemispheres.

Crowley et al does not disclose or suggest dissolving an ionizable charge director material at a low concentration in the dielectric liquid to form clusters of ions having different mobilities, or causing said clusters to move at different speeds towards electrodes of opposite polarity to create a dipole moment which induces rotation of the ball.

In the Office Action the Examiner refers to Crowley et al disclosing "dielectric liquid (16) containing an ionizable charge director material" which forms mobile ions which move within the liquid and induce a dipole moment and rotate the particles. No such disclosure is found in Crowley et al. The reference clearly relies on the zeta potential differences between the different materials in the opposed hemispheres of the particles, which create a dipole particle which aligns with the electrical field. The particle is charged, not any ions in the dielectric liquid.

The other references made of record have been considered but are not found to be pertinent to the present claims.

As disclosed at col. 4 lines 1 to 4 of Sheridan Patent 4,143,103, the difference in zeta potential between the hemispheres causes the spheres to acquire an electrical charge, not the dielectric liquid. See also Sheridan Patent 4,126,854 at col. 2, lines 35-37.

For all of the foregoing reasons, it is respectfully submitted that all of the claims now present in the application are clearly novel and patentable over the prior art of record, and are in proper form for allowance. Accordingly, favorable reconsideration and allowance is respectfully requested. Should any unresolved issues remain, the Examiner is invited to call Applicants' attorney at the telephone number indicated below.

Please charge the amount of \$410.00 for a 2 month extension of time to the below noted Deposit Account. The Commissioner is hereby authorized to charge payment for any fees associated with this communication or credit any over payment to Deposit Account No.24-0037.

Respectfully submitted,



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3/28/03

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